**LABORATORY DATA CONSULTANTS, INC.**

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

IWM Consulting Group
7428 Rockville Road
Indianapolis, IN 46214
ATTN: Brad Gentry

November 2, 2018

SUBJECT: Former Amphenol Facility, Data Validation

Dear Mr. Gentry,

Enclosed are the final validation reports for the fraction listed below. These SDGs were received on October 29, 2018. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project #43514:

<u>SDG #</u>	<u>Fraction:</u>
50208659, 50208787	Volatiles

The data validation was performed under Level III & IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- Off-site Groundwater Investigation Work Plan, Franklin Power Products, Inc./Amphenol Corporation, Franklin, Indiana; October 2018
- USEPA National Functional Guidelines for Organic Superfund Methods Data Review; January 2017
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; update IV, February 2007; update V, July 2014

Please feel free to contact us if you have any questions.

Sincerely,

Pei Geng
Project Manager/Senior Chemist

LDC Report# 43514A1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Former Amphenol Facility

LDC Report Date: November 1, 2018

Parameters: Volatiles

Validation Level: Level III & IV

Laboratory: Pace Analytical Services, LLC.

Sample Delivery Group (SDG): 50208659

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TW-2 GW (6.5'-11.5')	50208659001	Water	10/24/18
TW-3 GW (9.25'-11.25')	50208659002	Water	10/24/18
TW-12 GW (9.5'-11.5')**	50208659003**	Water	10/24/18
TW-10 GW (10.25'-12.25')**	50208659004**	Water	10/24/18
TW-8 GW (10.75'-12.75')	50208659005	Water	10/24/18
TW-8 GW (7.25'-9.25')	50208659006	Water	10/24/18
TW-9 GW (7.25'-9.25')**	50208659007**	Water	10/24/18
FD-1 GW	50208659008	Water	10/24/18
EB-1 GW	50208659009	Water	10/24/18
TB-1 GW	50208659010	Water	10/24/18
TW-10 GW (10.25'-12.25')DUP	50208659004DUP	Water	10/24/18
TW-8 GW (10.75'-12.75')MS	50208659005MS	Water	10/24/18

**Indicates sample underwent Level IV validation

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Off-site Groundwater Investigation Work Plan, Franklin Power Products, Inc./Amphenol Corporation, Franklin, Indiana (October 2018) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results. Samples appended with a double asterisk on the cover page were subjected to Level IV data validation, which is comprised of the QC summary forms as well as the raw data, to confirm sample quantitation and identification.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-1 GW was identified as a trip blank. No contaminants were found.

Sample EB-1 GW was identified as an equipment blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates/Duplicate Sample Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

Duplicate (DUP) sample analysis was performed on an associated project sample. Results were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples TW-2 GW (6.5'-11.5') and FD-1 GW were identified as field duplicates. No results were detected in any of the samples.

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

All compound quantitations met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

All target compound identifications met validation criteria for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XIV. System Performance

The system performance was acceptable for samples which underwent Level IV validation. Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

The quality control criteria reviewed were met and are considered acceptable. Based upon the data validation all results are considered valid and usable for all purposes.

Former Amphenol Facility**Volatiles - Data Qualification Summary - SDG 50208659**

No Sample Data Qualified in this SDG

Former Amphenol Facility**Volatiles - Laboratory Blank Data Qualification Summary - SDG 50208659**

No Sample Data Qualified in this SDG

Former Amphenol Facility**Volatiles - Field Blank Data Qualification Summary - SDG 50208659**

No Sample Data Qualified in this SDG



Pace Analytical Services, LLC

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: TW-2 GW (9.5'-11.5') Lab ID: 50208659001 Collected: 10/24/18 17:18 Received: 10/25/18 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/25/18 16:14	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 16:14	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 16:14	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 16:14	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 16:14	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.61	1		10/25/18 16:14	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.89	1		10/25/18 16:14	71-55-6	
Trichloroethene	ND	ug/L	5.0	0.80	1		10/25/18 16:14	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 16:14	75-01-4	
Surrogates									
Dibromofluoromethane (S)	98	%.	89-116		1		10/25/18 16:14	1868-53-7	
4-Bromofluorobenzene (S)	101	%.	85-111		1		10/25/18 16:14	460-00-4	
Toluene-d8 (S)	97	%.	87-110		1		10/25/18 16:14	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: TW-3 GW (9.25'-11.25') Lab ID: 50208659002 Collected: 10/24/18 16:25 Received: 10/25/18 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/25/18 16:49	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 16:49	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 16:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 16:49	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 16:49	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.61	1		10/25/18 16:49	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.89	1		10/25/18 16:49	71-55-6	
Trichloroethene	ND	ug/L	5.0	0.80	1		10/25/18 16:49	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 16:49	75-01-4	
Surrogates									
Dibromofluoromethane (S)	99	%	89-116		1		10/25/18 16:49	1868-53-7	
4-Bromofluorobenzene (S)	98	%	85-111		1		10/25/18 16:49	460-00-4	
Toluene-d8 (S)	97	%	87-110		1		10/25/18 16:49	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: TW-12 GW (9.5'-11.5') Lab ID: 50208659003 Collected: 10/24/18 15:26 Received: 10/25/18 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/25/18 17:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 17:25	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 17:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 17:25	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 17:25	75-09-2	
Tetrachloroethene	23.6	ug/L	5.0	0.61	1		10/25/18 17:25	127-18-4	
1,1,1-Trichloroethane	3.0J	ug/L	5.0	0.89	1		10/25/18 17:25	71-55-6	
Trichloroethene	35.7	ug/L	5.0	0.80	1		10/25/18 17:25	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 17:25	75-01-4	
Surrogates									
Dibromofluoromethane (S)	99	%	89-116		1		10/25/18 17:25	1868-53-7	
4-Bromofluorobenzene (S)	100	%	85-111		1		10/25/18 17:25	460-00-4	
Toluene-d8 (S)	100	%	87-110		1		10/25/18 17:25	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: TW-10 GW (10.25'-12.25') Lab ID: 50208659004 Collected: 10/24/18 14:25 Received: 10/25/18 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/25/18 18:01	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 18:01	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 18:01	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 18:01	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 18:01	75-09-2	
Tetrachloroethene	32.5	ug/L	5.0	0.61	1		10/25/18 18:01	127-18-4	
1,1,1-Trichloroethane	11.0	ug/L	5.0	0.89	1		10/25/18 18:01	71-55-6	
Trichloroethene	82.2	ug/L	5.0	0.80	1		10/25/18 18:01	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 18:01	75-01-4	
Surrogates									
Dibromofluoromethane (S)	101	%	89-116		1		10/25/18 18:01	1868-53-7	
4-Bromofluorobenzene (S)	96	%	85-111		1		10/25/18 18:01	460-00-4	
Toluene-d8 (S)	95	%	87-110		1		10/25/18 18:01	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: TW-8 GW (10.75'-12.75') Lab ID: 50208659005 Collected: 10/24/18 13:30 Received: 10/25/18 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/25/18 19:12	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 19:12	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 19:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 19:12	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 19:12	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.61	1		10/25/18 19:12	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.89	1		10/25/18 19:12	71-55-6	
Trichloroethene	ND	ug/L	5.0	0.80	1		10/25/18 19:12	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 19:12	75-01-4	
Surrogates									
Dibromofluoromethane (S)	100	%	89-116		1		10/25/18 19:12	1868-53-7	
4-Bromofluorobenzene (S)	100	%	85-111		1		10/25/18 19:12	460-00-4	
Toluene-d8 (S)	98	%	87-110		1		10/25/18 19:12	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: TW-8 GW (7.25'-9.25') Lab ID: 50208659006 Collected: 10/24/18 12:44 Received: 10/25/18 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/25/18 19:48	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 19:48	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 19:48	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 19:48	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 19:48	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.61	1		10/25/18 19:48	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.89	1		10/25/18 19:48	71-55-6	
Trichloroethene	ND	ug/L	5.0	0.80	1		10/25/18 19:48	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 19:48	75-01-4	
Surrogates									
Dibromofluoromethane (S)	98	%.	89-116		1		10/25/18 19:48	1868-53-7	
4-Bromofluorobenzene (S)	97	%.	85-111		1		10/25/18 19:48	460-00-4	
Toluene-d8 (S)	96	%.	87-110		1		10/25/18 19:48	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: TW-9 GW (7.25'-9.25') Lab ID: 50208659007 Collected: 10/24/18 11:45 Received: 10/25/18 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	2.2J	ug/L	5.0	0.47	1		10/25/18 20:23	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 20:23	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 20:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 20:23	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 20:23	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.61	1		10/25/18 20:23	127-18-4	
1,1,1-Trichloroethane	4.1J	ug/L	5.0	0.89	1		10/25/18 20:23	71-55-6	
Trichloroethene	21.4	ug/L	5.0	0.80	1		10/25/18 20:23	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 20:23	75-01-4	
Surrogates									
Dibromofluoromethane (S)	98	%	89-116		1		10/25/18 20:23	1868-53-7	
4-Bromofluorobenzene (S)	99	%	85-111		1		10/25/18 20:23	460-00-4	
Toluene-d8 (S)	96	%	87-110		1		10/25/18 20:23	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: FD-1 GW Lab ID: 50208659008 Collected: 10/24/18 08:00 Received: 10/25/18 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/25/18 20:59	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 20:59	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 20:59	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 20:59	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 20:59	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.61	1		10/25/18 20:59	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.89	1		10/25/18 20:59	71-55-6	
Trichloroethene	ND	ug/L	5.0	0.80	1		10/25/18 20:59	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 20:59	75-01-4	
Surrogates									
Dibromofluoromethane (S)	98	%.	89-116		1		10/25/18 20:59	1868-53-7	
4-Bromofluorobenzene (S)	98	%.	85-111		1		10/25/18 20:59	460-00-4	
Toluene-d8 (S)	97	%.	87-110		1		10/25/18 20:59	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: EB-1 GW Lab ID: 50208659009 Collected: 10/24/18 17:45 Received: 10/25/18 07:50 Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/25/18 21:35	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 21:35	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 21:35	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 21:35	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 21:35	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.61	1		10/25/18 21:35	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.89	1		10/25/18 21:35	71-55-6	
Trichloroethene	ND	ug/L	5.0	0.80	1		10/25/18 21:35	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 21:35	75-01-4	
Surrogates									
Dibromofluoromethane (S)	98	%	89-116		1		10/25/18 21:35	1868-53-7	
4-Bromofluorobenzene (S)	98	%	85-111		1		10/25/18 21:35	460-00-4	
Toluene-d8 (S)	96	%	87-110		1		10/25/18 21:35	2037-26-5	

EHP/18

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, LLC

7726 Moller Road

Indianapolis, IN 46268

(317)228-3100

ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208659

Sample: TB-1 GW Lab ID: 50208659010 Collected: 10/24/18 17:50 Received: 10/25/18 07:50 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/25/18 22:11	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.32	1		10/25/18 22:11	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.37	1		10/25/18 22:11	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.86	1		10/25/18 22:11	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/25/18 22:11	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.61	1		10/25/18 22:11	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.89	1		10/25/18 22:11	71-55-6	
Trichloroethene	ND	ug/L	5.0	0.80	1		10/25/18 22:11	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.27	1		10/25/18 22:11	75-01-4	
Surrogates									
Dibromofluoromethane (S)	100	%.	89-116		1		10/25/18 22:11	1868-53-7	
4-Bromofluorobenzene (S)	101	%.	85-111		1		10/25/18 22:11	460-00-4	
Toluene-d8 (S)	98	%.	87-110		1		10/25/18 22:11	2037-26-5	

2/10/18

REPORT OF LABORATORY ANALYSIS

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Date: 10/26/2018 11:37 AM

Page 15 of 22

LDC #: 43514A1 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: 50208659 Level III/IV
 Laboratory: Pace Analytical Energy Services, LLC

Date: 11/01/18
 Page: 1 of 2
 Reviewer: JVG
 2nd Reviewer: JVG

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260C)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A/A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A/A	1 CAL \leq 20% \checkmark 1 CV \leq 30%
IV.	Continuing calibration	A	CCV \leq 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	EB = 9 TB = 10
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates /LD	A/A	
IX.	Laboratory control samples	A	LCS
X.	Field duplicates	ND	D = 1/8
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	A	Not reviewed for Level III validation.
XIII.	Target compound identification	A	Not reviewed for Level III validation.
XIV.	System performance	A	Not reviewed for Level III validation.
XV.	Overall assessment of data	A	

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

SB=Source blank
 OTHER:

** Indicates sample underwent Level IV validation

	Client ID	Lab ID	Matrix	Date
1	TW-2 GW (6.5'-11.5') D	50208659001	Water	10/24/18
2	TW-3 GW (9.25'-11.25')	50208659002	Water	10/24/18
3	TW-12 GW (9.5'-11.5')**	50208659003**	Water	10/24/18
4	TW-10 GW (10.25'-12.25')**	50208659004**	Water	10/24/18
5	TW-8 GW (10.75'-12.75')	50208659005	Water	10/24/18
6	TW-8 GW (7.25'-9.25')	50208659006	Water	10/24/18
7	TW-9 GW (7.25'-9.25')**	50208659007**	Water	10/24/18
8	FD-1 GW D	50208659008	Water	10/24/18
9	EB-1 GW	50208659009	Water	10/24/18
10	TB-1 GW	50208659010	Water	10/24/18
11	TW-10 GW (10.25'-12.25')DUP	50208659004DUP	Water	10/24/18
12	TW-8 GW (10.75'-12.75')MS	50208659005MS	Water	10/24/18
13				

- MB 2161086

LDC #: 43514A1

VALIDATION FINDINGS CHECKLIST

Page: 1 of 2
Reviewer: JVG
2nd Reviewer: A

Method: Volatiles (EPA SW 846 Method 8260C)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
Were all technical holding times met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was cooler temperature criteria met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
II. GC/MS Instrument performance check				
Were the BFB performance results reviewed and found to be within the specified criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all samples analyzed within the 12 hour clock criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IIIa. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent relative standard deviations (%RSD) \leq 20% and relative response factors (RRF) within method criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a curve fit used for evaluation? If yes, did the initial calibration meet the curve fit acceptance criteria of > 0.990 ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IIIb. Initial Calibration Verification				
Was an initial calibration verification standard analyzed after each initial calibration for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) \leq 30% or percent recoveries (%R) 70-130%?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were all percent differences (%D) \leq 20% and relative response factors (RRF) within method criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
V. Laboratory Blanks				
Was a laboratory blank associated with every sample in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a laboratory blank analyzed at least once every 12 hours for each matrix and concentration?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was there contamination in the laboratory blanks? If yes, please see the Blanks validation completeness worksheet.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
VI. Field blanks				
Were field blanks were identified in this SDG?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Were target compounds detected in the field blanks?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
VII. Surrogate spikes				
Were all surrogate percent recovery (%R) within QC limits?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
VIII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was a MS/MSD analyzed every 20 samples of each matrix?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

LDC #: 43514 A1

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: JVG
2nd Reviewer: AC

Validation Area	Yes	No	NA	Findings/Comments
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	/			
IX. Laboratory control samples				
Was an LCS analyzed for this SDG?	/			
Was an LCS analyzed per analytical batch?	/			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	/			
X. Field duplicates				
Were field duplicate pairs identified in this SDG?	/			
Were target compounds detected in the field duplicates?		/		
XI. Internal standards				
Were internal standard area counts within -50% to +100% of the associated calibration standard?	/			
Were retention times within + 30 seconds of the associated calibration standard?	/			
XII. Compound quantitation				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Target compound identification				
Were relative retention times (RRT's) within + 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	/			
Were chromatogram peaks verified and accounted for?	/			
XIV. System performance				
System performance was found to be acceptable.	/			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	/			

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2.
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2.
C. Vinyl chloride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO. 1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3-Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.	Z2.

LDC#: 43514A1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 2
 Reviewer: JVG
 2nd Reviewer: ⤴

Method: VOA (EPA SW846 Method 8260)

Calibration Date	Instrument	Compound	Standard	(Y) Response ratio	(X) Concentration ratio
10/18/2018	50MV4B	Trichloroethene (DFB)	0.5	0.00119	0.010
			1	0.00573	0.020
			2	0.00947	0.040
			5	0.02350	0.100
			10	0.05036	0.200
			50	0.26269	1.000
			150	0.83486	3.000
			300	1.70730	6.000

Regression Output	Calculated	Reported
Constant	b = -0.006644	-0.00664
R Squared	r ² = 0.99980	0.99980
X Coefficient(s)	m = 0.28431	0.28431
Correlation Coefficient	0.999902	
Coefficient of Determination (r ²)	0.999805	0.999805

101818 tce voa 50mv4b L

LDC #: 43514A1

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 2 of 2
 Reviewer: JVG
 2nd Reviewer: A

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$$RRF = (A_x)(C_{is}) / (A_{is})(C_x)$$

average RRF = sum of the RRFs/number of standards

$$\%RSD = 100 * (S/X)$$

 A_x = Area of Compound C_x = Concentration of compound,

S= Standard deviation of the RRFs,


 A_{is} = Area of associated internal standard C_{is} = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (RRF 50 std)	Recalculated RRF (RRF 50 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL 50MV4B	10/18/2018	Trichloroethene (DFB)	see r2 calc					
			Tetrachloroethane (CBZ)	0.39357	0.39357	0.39457	0.39457	10.6849	10.6845

LDC # 43514A1

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Calculation Verification

Page: 1 of 1
 Reviewer: JVG
 2nd Reviewer: 

METHOD: GC/MS VOA (EPA SW 846 Method 8260C)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Difference} = 100 * (\text{ave. RRF} - \text{RRF}) / \text{ave. RRF}$$

$$\text{RRF} = (\text{Ax})(\text{Cis}) / (\text{Ais})(\text{Cx})$$

Where:

ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

Ax = Area of compound,

Cx = Concentration of compound,

Ais = Area of associated internal standard

Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial)	Reported RRF (CCV)	Recalculated RRF (CCV)	Reported % D	Recalculated %D
1	14012384CCV	10/25/2018	Trichloroethene (DFB)	50.00000	48.09403	48.09403	3.81	3.81
			Tetrachloroethane (CBZ)	0.39457	0.42347	0.42347	7.32	7.32

LDC #: 43514A1

VALIDATION FINDINGS WORKSHEET **Surrogate Results Verification**

Page: 1 of 1Reviewer: JVG2nd reviewer: ✓**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate SpikedSample ID: 4

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane	50.0	50.5	101	101	0
1,2-Dichloroethane-d4	↓				
Toluene-d8		47.7	95	95	
Bromofluorobenzene	↓	47.8	96	96	

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

Sample ID: _____

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Dibromofluoromethane					
1,2-Dichloroethane-d4					
Toluene-d8					
Bromofluorobenzene					

LDC #: 43514 A1

VALIDATION FINDINGS WORKSHEET **Matrix Spike/Matrix Spike Duplicates Results Verification**

Page: 1 of 1Reviewer: JVG2nd Reviewer: X**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

$$\% \text{ Recovery} = 100 * (\text{SSC} - \text{SC}) / \text{SA}$$

Where: SSC = Spiked sample concentration
SA = Spike added

SC = Sample concentration

$$\text{RPD} = | \text{MSC} - \text{MSD} | * 2 / (\text{MSC} + \text{MSDC})$$

MSC = Matrix spike concentration

MSDC = Matrix spike duplicate concentration

MS/MSD sample: _____

Compound	Spike Added (ug/L)		Sample Concentration (ug/L)	Spiked Sample Concentration (ug/L)		Matrix Spike		Matrix Spike Duplicate		MS/MSD	
						Percent Recovery		Percent Recovery		RPD	
	MS	MSD		MS	MSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
1,1-Dichloroethene ^a	50.0	50.0 ^{NA}	0	44.7	44.7 ^{NA}	89	89				
Trichloroethene	↓	↓	↓	41.9	41.9 ^L	84	84				
Benzene											
Toluene											
Chlorobenzene											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 43514 A1

VALIDATION FINDINGS WORKSHEET **Laboratory Control Sample Results Verification**

Page: 1 of 1Reviewer: JVG2nd Reviewer: [Signature]**METHOD:** GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = $100 * SSC/SA$

Where: SSC = Spiked sample concentration
 SA = Spike added

RPD = $|LCSC - LCSDC| * 2 / (LCSC + LCSDC)$

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS ID: 2161087 LCS

Compound	Spike Added (ug/L)		Spiked Sample Concentration (ug/L)		LCS		LCSD		LCS/LCSD	
					Percent Recovery		Percent Recovery		RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene ^a	50.0	NA	46.2	NA	92	92				
Trichloroethene	↓	↓	45.6	↓	91	91				
Benzene										
Toluene										
Chlorobenzene										

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC Report# 43514B1

Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Former Amphenol Facility

LDC Report Date: November 1, 2018

Parameters: Volatiles

Validation Level: Level III

Laboratory: Pace Analytical Services, LLC.

Sample Delivery Group (SDG): 50208787

Sample Identification	Laboratory Sample Identification	Matrix	Collection Date
TW-13 GW(11.25'-13.25')	50208787001	Water	10/25/18
TW-11 GW(8.75'-10.75')	50208787002	Water	10/25/18
TW-4 GW(15.25'-17.25')	50208787003	Water	10/25/18
TW-4 GW(19'-21')	50208787004	Water	10/25/18
TW-14 GW(18.25'-20.25')	50208787005	Water	10/25/18
TW-14 GW(14.75'-16.75')	50208787006	Water	10/25/18
TW-7 GW(14.5'-16.5')	50208787007	Water	10/25/18
TW-7 GW(18.66'-20.66')	50208787008	Water	10/25/18
MW-9	50208787009	Water	10/25/18
TW-5 GW(14.75'-16.75')	50208787010	Water	10/25/18
TW-6 GW(12.75'-14.75')	50208787011	Water	10/25/18
FD-2 GW	50208787012	Water	10/25/18
TB-2 GW	50208787013	Water	10/25/18
MW-9MS	50208787009MS	Water	10/25/18
MW-9MSD	50208787009MSD	Water	10/25/18

Introduction

This Data Validation Report (DVR) presents data validation findings and results for the associated samples listed on the cover page. Data validation was performed in accordance with the Off-site Groundwater Investigation Work Plan, Franklin Power Products, Inc./Amphenol Corporation, Franklin, Indiana (October 2018) and a modified outline of the USEPA National Functional Guidelines (NFG) for Organic Superfund Methods Data Review (January 2017). Where specific guidance was not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following method:

Volatile Organic Compounds (VOCs) by Environmental Protection Agency (EPA) SW 846 Method 8260C

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results.

The following are definitions of the data qualifiers utilized during data validation:

- J (Estimated): The compound or analyte was analyzed for and positively identified by the laboratory; however the reported concentration is estimated due to non-conformances discovered during data validation.
- U (Non-detected): The compound or analyte was analyzed for and positively identified by the laboratory; however the compound or analyte should be considered non-detected at the reported concentration due to the presence of contaminants detected in the associated blank(s).
- UJ (Non-detected estimated): The compound or analyte was reported as not detected by the laboratory; however the reported quantitation/detection limit is estimated due to non-conformances discovered during data validation.
- R (Rejected): The sample results were rejected due to gross non-conformances discovered during data validation. Data qualified as rejected is not usable.
- NA (Not Applicable): The non-conformance discovered during data validation demonstrates a high bias, while the affected compound or analyte in the associated sample(s) was reported as not detected by the laboratory and did not warrant the qualification of the data.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

I. Sample Receipt and Technical Holding Times

All samples were received in good condition and cooler temperatures upon receipt met validation criteria.

All technical holding time requirements were met.

II. GC/MS Instrument Performance Check

A bromofluorobenzene (BFB) tune was performed at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration and Initial Calibration Verification

An initial calibration was performed as required by the method.

For compounds where average relative response factors (RRFs) were utilized, the percent relative standard deviations (%RSD) were less than or equal to 20.0%.

In the case where the laboratory used a calibration curve to evaluate the compounds, all coefficients of determination (r^2) were greater than or equal to 0.990.

Average relative response factors (RRF) for all compounds were within validation criteria.

The percent differences (%D) of the initial calibration verification (ICV) standard were less than or equal to 30.0% for all compounds.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds with the following exceptions:

Date	Compound	%D	Associated Samples	Flag	A or P
10/29/18	Vinyl chloride	24.4153	FD-2 GW TB-2 GW	UJ (all non-detects)	A

All of the continuing calibration relative response factors (RRF) were within validation criteria.

V. Laboratory Blanks

Laboratory blanks were analyzed as required by the method. No contaminants were found in the laboratory blanks.

VI. Field Blanks

Sample TB-2 GW was identified as a trip blank. No contaminants were found.

VII. Surrogates

Surrogates were added to all samples as required by the method. All surrogate recoveries (%R) were within QC limits.

VIII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) sample analysis was performed on an associated project sample. Percent recoveries (%R) were within QC limits. Relative percent differences (RPD) were within QC limits.

IX. Laboratory Control Samples

Laboratory control samples (LCS) were analyzed as required by the method. Percent recoveries (%R) were within QC limits.

X. Field Duplicates

Samples TW-6 GW(12.75'-14.75') and FD-2 GW were identified as field duplicates. No results were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD
	TW-6 GW(12.75'-14.75')	FD-2 GW	
cis-1,2-Dichloroethene	5.0U	0.56	Not calculable
Tetrachloroethene	2.4	2.5	4
Trichloroethene	2.3	2.1	9

XI. Internal Standards

All internal standard areas and retention times were within QC limits.

XII. Compound Quantitation

Raw data were not reviewed for Level III validation.

XIII. Target Compound Identifications

Raw data were not reviewed for Level III validation.

XIV. System Performance

Raw data were not reviewed for Level III validation.

XV. Overall Assessment of Data

The analysis was conducted within all specifications of the method. No results were rejected in this SDG.

Due to continuing calibration %D, data were qualified as estimated in two samples.

The quality control criteria reviewed, other than those discussed above, were met and are considered acceptable. Sample results that were found to be estimated (J) are usable for limited purposes only. Based upon the data validation all other results are considered valid and usable for all purposes.

Former Amphenol Facility
Volatiles - Data Qualification Summary - SDG 50208787

Sample	Compound	Flag	A or P	Reason
FD-2 GW TB-2 GW	Vinyl chloride	UJ (all non-detects)	A	Continuing calibration (%D)

Former Amphenol Facility
Volatiles - Laboratory Blank Data Qualification Summary - SDG 50208787

No Sample Data Qualified in this SDG

Former Amphenol Facility
Volatiles - Field Blank Data Qualification Summary - SDG 50208787

No Sample Data Qualified in this SDG



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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-13 GW (11.25'-13.25') Lab ID: 50208787001 Collected: 10/25/18 10:30 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	2.7J	ug/L	5.0	0.47	1		10/28/18 15:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 15:40	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 15:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 15:40	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 15:40	75-09-2	
Tetrachloroethene	58.6	ug/L	5.0	0.93	1		10/28/18 15:40	127-18-4	
1,1,1-Trichloroethane	21.1	ug/L	5.0	0.49	1		10/28/18 15:40	71-55-6	
Trichloroethene	117	ug/L	5.0	0.64	1		10/28/18 15:40	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 15:40	75-01-4	
Surrogates									
Dibromofluoromethane (S)	101	%.	89-116		1		10/28/18 15:40	1868-53-7	
4-Bromofluorobenzene (S)	101	%.	85-111		1		10/28/18 15:40	460-00-4	
Toluene-d8 (S)	98	%.	87-110		1		10/28/18 15:40	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-11 GW (8.75'-10.75') Lab ID: 50208787002 Collected: 10/25/18 11:05 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 16:16	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 16:16	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 16:16	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 16:16	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 16:16	75-09-2	
Tetrachloroethene	52.7	ug/L	5.0	0.93	1		10/28/18 16:16	127-18-4	
1,1,1-Trichloroethane	8.0	ug/L	5.0	0.49	1		10/28/18 16:16	71-55-6	
Trichloroethene	76.6	ug/L	5.0	0.64	1		10/28/18 16:16	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 16:16	75-01-4	
Surrogates									
Dibromofluoromethane (S)	95	%.	89-116		1		10/28/18 16:16	1868-53-7	
4-Bromofluorobenzene (S)	103	%.	85-111		1		10/28/18 16:16	460-00-4	
Toluene-d8 (S)	97	%.	87-110		1		10/28/18 16:16	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-4 GW (15.25'-17.25') Lab ID: 50208787003 Collected: 10/25/18 11:50 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 16:52	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 16:52	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 16:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 16:52	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 16:52	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.93	1		10/28/18 16:52	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.49	1		10/28/18 16:52	71-55-6	
Trichloroethene	1.8J	ug/L	5.0	0.64	1		10/28/18 16:52	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 16:52	75-01-4	
Surrogates									
Dibromofluoromethane (S)	99	%	89-116		1		10/28/18 16:52	1868-53-7	
4-Bromofluorobenzene (S)	87	%	85-111		1		10/28/18 16:52	460-00-4	
Toluene-d8 (S)	89	%	87-110		1		10/28/18 16:52	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-4 GW (19'-21') Lab ID: 50208787004 Collected: 10/25/18 12:22 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 17:27	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 17:27	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 17:27	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 17:27	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 17:27	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.93	1		10/28/18 17:27	127-18-4	
1,1,1-Trichloroethane	0.62J	ug/L	5.0	0.49	1		10/28/18 17:27	71-55-6	
Trichloroethene	5.9	ug/L	5.0	0.64	1		10/28/18 17:27	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 17:27	75-01-4	
Surrogates									
Dibromofluoromethane (S)	102	%	89-116		1		10/28/18 17:27	1868-53-7	
4-Bromofluorobenzene (S)	100	%	85-111		1		10/28/18 17:27	460-00-4	
Toluene-d8 (S)	97	%	87-110		1		10/28/18 17:27	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-14 GW (18.25'-20.25') Lab ID: 50208787005 Collected: 10/25/18 12:58 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV		Analytical Method: EPA 8260							
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 18:03	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 18:03	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 18:03	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 18:03	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 18:03	75-09-2	
Tetrachloroethene	4.4J	ug/L	5.0	0.93	1		10/28/18 18:03	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.49	1		10/28/18 18:03	71-55-6	
Trichloroethene	1.5J	ug/L	5.0	0.64	1		10/28/18 18:03	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 18:03	75-01-4	
Surrogates									
Dibromofluoromethane (S)	101	%	89-116		1		10/28/18 18:03	1868-53-7	
4-Bromofluorobenzene (S)	102	%	85-111		1		10/28/18 18:03	460-00-4	
Toluene-d8 (S)	95	%	87-110		1		10/28/18 18:03	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-14 GW (14.75'-16.75') Lab ID: 50208787006 Collected: 10/25/18 13:40 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 18:39	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 18:39	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 18:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 18:39	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 18:39	75-09-2	
Tetrachloroethene	1.8J	ug/L	5.0	0.93	1		10/28/18 18:39	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.49	1		10/28/18 18:39	71-55-6	
Trichloroethene	ND	ug/L	5.0	0.64	1		10/28/18 18:39	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 18:39	75-01-4	
Surrogates									
Dibromofluoromethane (S)	99	%.	89-116		1		10/28/18 18:39	1868-53-7	
4-Bromofluorobenzene (S)	99	%.	85-111		1		10/28/18 18:39	460-00-4	
Toluene-d8 (S)	97	%.	87-110		1		10/28/18 18:39	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-7 GW (14.5'-16.5') Lab ID: 50208787007 Collected: 10/25/18 14:33 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 19:15	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 19:15	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 19:15	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 19:15	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 19:15	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.93	1		10/28/18 19:15	127-18-4	
1,1,1-Trichloroethane	0.74J	ug/L	5.0	0.49	1		10/28/18 19:15	71-55-6	
Trichloroethene	2.4J	ug/L	5.0	0.64	1		10/28/18 19:15	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 19:15	75-01-4	
Surrogates									
Dibromofluoromethane (S)	100	%.	89-116		1		10/28/18 19:15	1868-53-7	
4-Bromofluorobenzene (S)	101	%.	85-111		1		10/28/18 19:15	460-00-4	
Toluene-d8 (S)	97	%.	87-110		1		10/28/18 19:15	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-7 GW (18.66'-20.66') Lab ID: 50208787008 Collected: 10/25/18 15:05 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 19:50	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 19:50	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 19:50	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 19:50	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 19:50	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.93	1		10/28/18 19:50	127-18-4	
1,1,1-Trichloroethane	1.4J	ug/L	5.0	0.49	1		10/28/18 19:50	71-55-6	
Trichloroethene	4.5J	ug/L	5.0	0.64	1		10/28/18 19:50	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 19:50	75-01-4	
Surrogates									
Dibromofluoromethane (S)	98	%	89-116		1		10/28/18 19:50	1868-53-7	
4-Bromofluorobenzene (S)	98	%	85-111		1		10/28/18 19:50	460-00-4	
Toluene-d8 (S)	96	%	87-110		1		10/28/18 19:50	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: MW-9		Lab ID: 50208787009		Collected: 10/25/18 16:30		Received: 10/26/18 09:20		Matrix: Water	
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV		Analytical Method: EPA 8260							
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 20:26	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 20:26	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 20:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 20:26	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 20:26	75-09-2	
Tetrachloroethene	ND	ug/L	5.0	0.93	1		10/28/18 20:26	127-18-4	
1,1,1-Trichloroethane	2.2J	ug/L	5.0	0.49	1		10/28/18 20:26	71-55-6	
Trichloroethene	1.7J	ug/L	5.0	0.64	1		10/28/18 20:26	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 20:26	75-01-4	
Surrogates									
Dibromofluoromethane (S)	102	%	89-116		1		10/28/18 20:26	1868-53-7	
4-Bromofluorobenzene (S)	105	%	85-111		1		10/28/18 20:26	460-00-4	
Toluene-d8 (S)	96	%	87-110		1		10/28/18 20:26	2037-26-5	

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Pace Analytical Services, LLC

7726 Moller Road

Indianapolis, IN 46268

(317)228-3100

ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-5 GW (14.75'-16.75') Lab ID: 50208787010 Collected: 10/25/18 17:07 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 21:02	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 21:02	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 21:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 21:02	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 21:02	75-09-2	
Tetrachloroethene	2.7J	ug/L	5.0	0.93	1		10/28/18 21:02	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.49	1		10/28/18 21:02	71-55-6	
Trichloroethene	1.9J	ug/L	5.0	0.64	1		10/28/18 21:02	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 21:02	75-01-4	
Surrogates									
Dibromofluoromethane (S)	103	%	89-116		1		10/28/18 21:02	1868-53-7	
4-Bromofluorobenzene (S)	100	%	85-111		1		10/28/18 21:02	460-00-4	
Toluene-d8 (S)	96	%	87-110		1		10/28/18 21:02	2037-26-5	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TW-6 GW (12.75'-14.75') Lab ID: 50208787011 Collected: 10/25/18 17:38 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/28/18 21:38	75-34-3	
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/28/18 21:38	107-06-2	
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/28/18 21:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/28/18 21:38	156-60-5	
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/28/18 21:38	75-09-2	
Tetrachloroethene	2.4J	ug/L	5.0	0.93	1		10/28/18 21:38	127-18-4	
1,1,1-Trichloroethane	ND	ug/L	5.0	0.49	1		10/28/18 21:38	71-55-6	
Trichloroethene	2.3J	ug/L	5.0	0.64	1		10/28/18 21:38	79-01-6	
Vinyl chloride	ND	ug/L	2.0	0.97	1		10/28/18 21:38	75-01-4	
Surrogates									
Dibromofluoromethane (S)	99	%	89-116		1		10/28/18 21:38	1868-53-7	
4-Bromofluorobenzene (S)	99	%	85-111		1		10/28/18 21:38	460-00-4	
Toluene-d8 (S)	97	%	87-110		1		10/28/18 21:38	2037-26-5	

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: FD-2 GW Lab ID: 50208787012 Collected: 10/25/18 08:00 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/29/18 05:23	75-34-3	M5
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/29/18 05:23	107-06-2	M5
cis-1,2-Dichloroethene	0.56J	ug/L	5.0	0.48	1		10/29/18 05:23	156-59-2	M5
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/29/18 05:23	156-60-5	M5
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/29/18 05:23	75-09-2	M5
Tetrachloroethene	2.5J	ug/L	5.0	0.93	1		10/29/18 05:23	127-18-4	M5
1,1,1-Trichloroethane	ND	ug/L	5.0	0.49	1		10/29/18 05:23	71-55-6	M5
Trichloroethene	2.1J	ug/L	5.0	0.64	1		10/29/18 05:23	79-01-6	M5
Vinyl chloride	ND <i>KS</i>	ug/L	2.0	0.97	1		10/29/18 05:23	75-01-4	M5
Surrogates									
Dibromofluoromethane (S)	100	%	89-116		1		10/29/18 05:23	1868-53-7	M5
4-Bromofluorobenzene (S)	100	%	85-111		1		10/29/18 05:23	460-00-4	M5
Toluene-d8 (S)	97	%	87-110		1		10/29/18 05:23	2037-26-5	M5

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ANALYTICAL RESULTS

Project: Former Amphenol Facility

Pace Project No.: 50208787

Sample: TB-2 GW Lab ID: 50208787013 Collected: 10/25/18 08:00 Received: 10/26/18 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
8260/5030 MSV Analytical Method: EPA 8260									
1,1-Dichloroethane	ND	ug/L	5.0	0.47	1		10/29/18 05:59	75-34-3	M5
1,2-Dichloroethane	ND	ug/L	5.0	0.27	1		10/29/18 05:59	107-06-2	M5
cis-1,2-Dichloroethene	ND	ug/L	5.0	0.48	1		10/29/18 05:59	156-59-2	M5
trans-1,2-Dichloroethene	ND	ug/L	5.0	0.76	1		10/29/18 05:59	156-60-5	M5
Methylene Chloride	ND	ug/L	5.0	5.0	1		10/29/18 05:59	75-09-2	M5
Tetrachloroethene	ND	ug/L	5.0	0.93	1		10/29/18 05:59	127-18-4	M5
1,1,1-Trichloroethane	ND	ug/L	5.0	0.49	1		10/29/18 05:59	71-55-6	M5
Trichloroethene	ND	ug/L	5.0	0.64	1		10/29/18 05:59	79-01-6	M5
Vinyl chloride	ND <i>4J</i>	ug/L	2.0	0.97	1		10/29/18 05:59	75-01-4	M5
Surrogates									
Dibromofluoromethane (S)	100	%.	89-116		1		10/29/18 05:59	1868-53-7	M5
4-Bromofluorobenzene (S)	101	%.	85-111		1		10/29/18 05:59	460-00-4	M5
Toluene-d8 (S)	98	%.	87-110		1		10/29/18 05:59	2037-26-5	M5

12/1/18

REPORT OF LABORATORY ANALYSIS

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Date: 10/29/2018 12:30 PM

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LDC #: 43514B1 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: 50208787 Level III
 Laboratory: Pace Analytical Energy Services, LLC

Date: 11/6/18
 Page: 1 of 2
 Reviewer: SV
 2nd Reviewer: SV

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260) C

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Sample receipt/Technical holding times	A / A	
II.	GC/MS Instrument performance check	A	
III.	Initial calibration/ICV	A / A	ICAL = 20.1% 20.2 r^2 100% 30%
IV.	Continuing calibration	SW	CW = 20%
V.	Laboratory Blanks	A	
VI.	Field blanks	ND	TB = 13
VII.	Surrogate spikes	A	
VIII.	Matrix spike/Matrix spike duplicates	A	
IX.	Laboratory control samples	A	UCS
X.	Field duplicates	SW	D = 11/12
XI.	Internal standards	A	
XII.	Compound quantitation RL/LOQ/LODs	N	
XIII.	Target compound identification	N	
XIV.	System performance	N	
XV.	Overall assessment of data	A	

Note: A = Acceptable
 N = Not provided/applicable
 SW = See worksheet

ND = No compounds detected
 R = Rinsate
 FB = Field blank

D = Duplicate
 TB = Trip blank
 EB = Equipment blank

SB=Source blank
 OTHER:

	Client ID	Lab ID	Matrix	Date
1	TW-13 GW(11.25'-13.25')	50208787001	Water	10/25/18
2	TW-11 GW(8.75'-10.75')	50208787002	Water	10/25/18
3	TW-4 GW(15.25'-17.25')	50208787003	Water	10/25/18
4	TW-4 GW(19'-21')	50208787004	Water	10/25/18
5	TW-14 GW(18.25'-20.25')	50208787005	Water	10/25/18
6	TW-14 GW(14.75'-16.75')	50208787006	Water	10/25/18
7	TW-7 GW(14.5'-16.5')	50208787007	Water	10/25/18
8	TW-7 GW(18.66'-20.66')	50208787008	Water	10/25/18
9	MW-9	50208787009	Water	10/25/18
10	TW-5 GW(14.75'-16.75')	50208787010	Water	10/25/18
11	TW-6 GW(12.75'-14.75')	50208787011	Water	10/25/18
12	FD-2 GW	50208787012	Water	10/25/18
13	TB-2 GW	50208787013	Water	10/25/18

LDC #: 43514B1 **VALIDATION COMPLETENESS WORKSHEET**
 SDG #: 50208787 Level III
 Laboratory: Pace Analytical Energy Services, LLC

Date: 11/01/18
 Page: 2 of 2
 Reviewer: SL
 2nd Reviewer: AL

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260)

	Client ID	Lab ID	Matrix	Date
14	MW-9MS	50208787009MS	Water	10/25/18
15	MW-9MSD	50208787009MSD	Water	10/25/18
16				
17				
18				
19				
20				

Notes:

-1	MB 2163274					
-2	MB 2163282					

(Short list = 9 cpds only)

TARGET COMPOUND WORKSHEET

METHOD: VOA

A. Chloromethane	AA. Tetrachloroethene	AAA. 1,3,5-Trimethylbenzene	AAAA. Ethyl tert-butyl ether	A1. 1,3-Butadiene	A2.
B. Bromomethane	BB. 1,1,2,2-Tetrachloroethane	BBB. 4-Chlorotoluene	BBBB. tert-Amyl methyl ether	B1. Hexane	B2.
C. Vinyl chloride	CC. Toluene	CCC. tert-Butylbenzene	CCCC. 1-Chlorohexane	C1. Heptane	C2.
D. Chloroethane	DD. Chlorobenzene	DDD. 1,2,4-Trimethylbenzene	DDDD. Isopropyl alcohol	D1. Propylene	D2.
E. Methylene chloride	EE. Ethylbenzene	EEE. sec-Butylbenzene	EEEE. Acetonitrile	E1. Freon 11	E2.
F. Acetone	FF. Styrene	FFF. 1,3-Dichlorobenzene	FFFF. Acrolein	F1. Freon 12	F2.
G. Carbon disulfide	GG. Xylenes, total	GGG. p-Isopropyltoluene	GGGG. Acrylonitrile	G1. Freon 113	G2.
H. 1,1-Dichloroethene	HH. Vinyl acetate	HHH. 1,4-Dichlorobenzene	HHHH. 1,4-Dioxane	H1. Freon 114	H2.
I. 1,1-Dichloroethane	II. 2-Chloroethylvinyl ether	III. n-Butylbenzene	IIII. Isobutyl alcohol	I1. 2-Nitropropane	I2.
J. 1,2-Dichloroethene, total	JJ. Dichlorodifluoromethane	JJJ. 1,2-Dichlorobenzene	JJJJ. Methacrylonitrile	J1. Dimethyl disulfide	J2.
K. Chloroform	KK. Trichlorofluoromethane	KKK. 1,2,4-Trichlorobenzene	KKKK. Propionitrile	K1. 2,3-Dimethyl pentane	K2.
L. 1,2-Dichloroethane	LL. Methyl-tert-butyl ether	LLL. Hexachlorobutadiene	LLLL. Ethyl ether	L1. 2,4-Dimethyl pentane	L2.
M. 2-Butanone	MM. 1,2-Dibromo-3-chloropropane	MMM. Naphthalene	MMMM. Benzyl chloride	M1. 3,3-Dimethyl pentane	M2.
N. 1,1,1-Trichloroethane	NN. Methyl ethyl ketone	NNN. 1,2,3-Trichlorobenzene	NNNN. Iodomethane	N1. 2-Methylpentane	N2.
O. Carbon tetrachloride	OO. 2,2-Dichloropropane	OOO. 1,3,5-Trichlorobenzene	OOOO. 1,1-Difluoroethane	O1. 3-Methylpentane	O2.
P. Bromodichloromethane	PP. Bromochloromethane	PPP. trans-1,2-Dichloroethene	PPPP. Tetrahydrofuran	P1. 3-Ethylpentane	P2.
Q. 1,2-Dichloropropane	QQ. 1,1-Dichloropropene	QQQ. cis-1,2-Dichloroethene	QQQQ. Methyl acetate	Q1. 2,2-Dimethylpentane	Q2.
R. cis-1,3-Dichloropropene	RR. Dibromomethane	RRR. m,p-Xylenes	RRRR. Ethyl acetate	R1. 2,2,3- Trimethylbutane	R2.
S. Trichloroethene	SS. 1,3-Dichloropropane	SSS. o-Xylene	SSSS. Cyclohexane	S1. 2,2,4-Trimethylpentane	S2.
T. Dibromochloromethane	TT. 1,2-Dibromoethane	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	TTTT. Methylcyclohexane	T1. 2-Methylhexane	T2.
U. 1,1,2-Trichloroethane	UU. 1,1,1,2-Tetrachloroethane	UUU. 1,2-Dichlorotetrafluoroethane	UUUU. Allyl chloride	U1. Nonanal	U2.
V. Benzene	VV. Isopropylbenzene	VVV. 4-Ethyltoluene	VVVV. Methyl methacrylate	V1. 2-Methylnaphthalene	V2.
W. trans-1,3-Dichloropropene	WW. Bromobenzene	WWW. Ethanol	WWWW. Ethyl methacrylate	W1. Methanol	W2.
X. Bromoform	XX. 1,2,3-Trichloropropane	XXX. Di-isopropyl ether	XXXX. cis-1,4-Dichloro-2-butene	X1. 1,2,3-Trimethylbenzene	X2.
Y. 4-Methyl-2-pentanone	YY. n-Propylbenzene	YYY. tert-Butanol	YYYY. trans-1,4-Dichloro-2-butene	Y1.	Y2.
Z. 2-Hexanone	ZZ. 2-Chlorotoluene	ZZZ. tert-Butyl alcohol	ZZZZ. Pentachloroethane	Z1.	Z2.

LDC #: 43514 B1

VALIDATION FINDINGS WORKSHEET

Continuing Calibration

Page: 1 of 1

Reviewer: JVG

2nd Reviewer: 4

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

YN N/A Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?

☒ N N/A Were percent differences (%D) and relative response factors (RRF) within method criteria for all CCC's and SPCC's ?

Y(N)N/A Were all %D and RRFs within the validation criteria of ≤ 20 %D and ≥ 0.05 RRF?

[illegible]

LDC #: 43514B1

VALIDATION FINDINGS WORKSHEET **Field Duplicates**

Page: 1 of 1Reviewer: JVG2nd reviewer: *A***METHOD:** GC/MS VOA (EPA SW846 Method 8260)
☒ Y ☐ N ☐ N/A

Were field duplicate pairs identified in this SDG?

☒ Y ☐ N ☐ N/A

Were target compounds identified in the field duplicate pairs?

Compound	Concentration (ug/L)		RPD
	11	12	
QQQ	5.0U	0.56	NC
AA	2.4	2.5	4
S	2.3	2.1	9

V:\Josephine\FIELD DUPLICATES\43514B1 ivm amphenol.wpd